Claims 2-5, 7-15, 17, and 35 are pending in this application. Please amend claims 2, 17, and 35 as follows:

1.   (Canceled).

2.   (Currently amended) A method of automatically recognizing a network configuration, for automatically recognizing a device configuration on a network system having a network node including at least one or more intelligent network devices each implementing an SNMP agent and a management information base, the method comprising:

a first step of sending an ICMP echo request from an administrator terminal implementing an SNMP manager to individual network devices in the network node, and detecting existence and non-existence of network devices on the basis of responses therefrom, the administrator terminal implementing an SNMP manager, wherein the network devices include at least one device having plural IP addresses except for a router;

a second step of

creating plural different SNP messages each for inquiring whether or not the network devices support IP forwarding function and one or more of management information bases included in each SNIVP message wherein the management information bases (MIBs) include a bridge MIB. a repeater MIB and a printer MIB,

sending the plural SNMP messages one by one to the SNMP agents in network devices of which existence was detected to exist in the first step, and

detecting the types of the network devices in the network node based on information of success and failure of sending and receiving the plural SNMP messages and based on combinations of information stored in management information bases included in the received SNMP messages,

wherein the types of the individual network devices and roles of the individual network devices in the network node are determined based on the combinations of the information stored in the management information bases included in the received SNMP messages and wherein the type of device does not indicate the role of device

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primarily in terms of the device having the plural [[IT]] IP addresses except for the routers;

a third step of acquiring a set of physical addresses of network devices connected to ports of a network devices from the management information base of the network device, the network device being a type of device to have a bridge function;

a fourth step of acquiring information as to physical-1P address correspondence from the management information base of a network device having a routing function; and[[,]]

a fifth step of recognizing at an XP level the network devices connected to each of the ports of the network device having a bridge function, based on the acquired information as to physical-IP address correspondence.

3.   (Original) The method of automatically recognizing a network configuration according to claim 2, further comprising a sixth step of: recognizing that network devices from which a response to the ICMP echo request is returned are active and network devices from which no response is returned are non-existent; and referring to the information as to physical-IP address correspondence acquired in the fourth step, and if there is correspondence information of any network device other than those recognized to be active, recognizing this network device to be inactive.

4.   (Original) The method of automatically recognizing a network configuration according to claim 3, further comprising the step of checking the management information base of a network device having a bridge function or a repeater function for stored information on inactive network devices connected to ports of the network device, and if any, detecting connections of the inactive network devices based on the stored information.

5.   (Original) The method of automatically recognizing a network configuration according to claim 2, further comprising the step of detecting the presence of a plurality of network devices having a bridge function, based on the contents of the management information bases of the network devices acquired at the second step, and if the presence of a plurailty of them is detected, then detecting whether one of the network devices having a bridge function is connected to a particular port of a

parent device with one of the other network devices having a bridge function as the parent device, and if any, then retrieving a device configuration of each connection destination of a child device with that network device as the child device, thereby recognizing port-to-port connections between the network devices having a bridge function.

6. (Canceled)

7. (Previously Presented) The method of automatically recognizing a network configuration according to claim 5, comprising the step of, in the cases where the presence of a plurality of devices is detected between the parent device and the child device, detecting whether these devices each have any of a routing function, a bridge function, and a repeater function, and if none, then predicting the presence of non-intelligent packet relay equipment.

8. (Original) The method of automatically recognizing a network configuration according to claim 5, comprising the step of checking physical addresses stored in the management information bases of the parent and child devices recognized of connection, and when the physical address of the child device is not stored in the management information base of the parent device or when the physical address of the parent device is not stored in the management information base of the child device, selecting such an arbitrary device as commonly included in the sets of physical addresses of the devices connected to particular ports of the parent and child devices so that the recognition of connection between the parent and child devices is narrowed based on the connection ports of the parent and child devices to the device selected.

9. (Original) The method of automatically recognizing a network configuration according to claim 2, comprising the steps of:

  acquiring the value of update frequency of the source physical address of a latest received frame in an arbitrary port of a network device having a repeater function, so as to recognize the number of active devices connected to that arbitrary port from the value; and,

unless the value of update frequency is "0" or "1," acquiring the value of the source physical address of a latest received frame in the arbitrary port at regular time intervals, so as to recognize the physical addresses of all the network devices connected to that arbitrary port.

10. (Previously Presented) The method of automatically recognizing a network configuration according to claim 2, further comprising the step of acquiring the value of update frequency of the source physical address of a latest received frame in an arbitrary port of a network device having a repeater function at regular time intervals, and checking for a change in the value to recognize whether the network device has a repeater function.

11. (Original) The method of automatically recognizing a network configuration according to claim 2, further comprising the step of temporarily locking out an arbitrary port of a network device having a bridge function and a network device having a repeater function by using the administrator terminal, and if a network device whose connection cannot be recognized on the basis of information stored in the management information bases of the network device having a bridge function and the network device having a repeater function responds to an ICMP echo request packet before the lockout but no longer responds after the lockout, recognizing this device to be connected to the arbitrary port.

12. (Original) The method of automatically recognizing a network configuration according to claim 2, comprising the step of collecting port-by-port statistics as to send/receive frames of a network device having a bridge function and a network device having a repeater function at regular time intervals, and if network devices whose connections cannot be recognized on the basis of information stored in the management information bases of the network device having a bridge function and the network device having a repeater function have a pair of ports to fall within a range of values of the statistics arbitrarily set by port, recognizing this pair of ports to be in connection.

13. (Original) The method of automatically recognizing a network configuration according to any one of claims 3-12, comprising the step of collecting information stored in the management information bases of the active network devices at regular time intervals, storing the same into a storage area on the administrator terminal, and comparing previously collected contents and the currently collected contents for a difference to detect activation, suspension, modification of connection destination, modification of IP address, and the like of the active network devices.

14. (Original) The method of automatically recognizing a network configuration according to any one of claims 3-12, comprising the step of creating a model table of connections between devices on the basis of information as to connections between network devices, and referring to the model table to detect connections between network devices by each model of the connections between devices or by combining a plurality of models of the connections between devices.

15. (Original) The method of automatically recognizing a network configuration according to any one of claims 2-12, comprising the step of expanding a recognized network configuration into logical chart data, creating chart data including a physical device configuration arranged on a physical floor map or the like, and displaying at least one set of chart data on a display screen.

16. (Canceled).

17. (Currently amended) A system for automatically recognizing a network configuration, wherein an administrator terminal implementing an SNMP manager automatically recognizes a device configuration on a network system having a network node including at least one or more intelligent network devices each implementing an SNMP agent and a management information base, the administrator terminal implementing an SNMP manager comprising:

first means for sending an RCMP echo request to individual network devices in the network node, and detecting existence or non-existence of network devices on the basis of responses therefrom, wherein the network devices include at least one device having plural IP addresses except for a router;

second means for

creating plural SNP messages, each of the plural SNMP ins inquiring whether or not the network devices support IP forwarding function and one or more of management information bawl included in each SNMP message wherein the management information bases (Mills) include a bridge NIB, a repeater MIB and a printer MIB,

sending the plural SNMP messages one by one to the SNMP agents in network devices of which existence was detected by the first means, and

detecting the types of the network devices in the network node based on information of success and failure of sending and receiving the plural SNMP messages and based on combinations of information stored in the management information bases included in the received SNMP messages,

wherein the types of the individual network devices and roles of the individual network devices in the network node are determined based on the combinations of the information stored in the management information bases included in the received SNMP messages and wherein the type of device does not indicate the role of device primarily in terms of the device having the plural IP addresses except for the router;

third means for acquiring a set of physical addresses of network devices connected to ports of a network device from the management information base of the network device, the network device being a type of device to have a bridge function;

fourth means for acquiring information as to physical-IP address correspondence from the management information base of a network device having a routing function; and,

fifth means for recognizing at an IP level the devices connected to each of the ports of the network device having a bridge function, based on the acquired information as to physical-IP address correspondence.

18.   (Withdrawn) A network configuration chart displaying method for rendering display on a display screen in the system for automatically recognizing a network configuration according to claim 17, wherein

based on the connection information collected, packet relay equipment having a plurality of connection ports is displayed as a packet relay equipment object having as many connection objects as the number of connection ports, a network device such

as a computer and a printer is displayed as a device object having a connection object, and the connection between the packet relay equipment and the network device is displayed as a line segment connecting the connection objects to each other.

19. (Withdrawn) The network configuration chart displaying method according to claim 18, wherein a connection port number is displayed near a connection object of the packet relay equipment.

20. (Withdrawn) The network configuration chart displaying method according to claim 18 or 19, wherein connection objects of a plurality of connection ports are classified into a plurality of sets, and connections between network devices are displayed by set of connection objects.

21. (Withdrawn) The network configuration chart displaying method according to any one of claims 18-20, wherein when the packet relay equipment object displayed is selected, a distribution object corresponding to the packet relay equipment object is displayed.

22. (Withdrawn) The network configuration chart displaying method according to any one of claims 18-20, wherein a connection object and an ID object for specifying an connection object connected thereto are displayed instead of a line segment establishing a link between the connection objects.

23. (Withdrawn) The network configuration chart displaying method according to any one of claims 18-20, wherein a figure of a connection object is displayed in a figure of the packet relay equipment object.

24. (Withdrawn) The network configuration displaying method according to claim 23, wherein depending on the positions of devices connected to the packet relay equipment having a plurality of connection ports, connection objects are displayed on any sides of the figure of the packet relay equipment object.

25.   (Withdrawn) The network configuration chart displaying method according to any one of claims 18-20, wherein a plurality of network devices connected to the packet relay equipment having a plurality of connection ports are grouped toghether and displayed as a group object.

26.   (Withdrawn) The network configuration chart displaying method according to claim 25, wherein when the group object is selected, device objects representing devices belonging to the group are expanded and displayed in corresponding positions.

27.   (Withdrawn) The network configuration chart displaying method according to claim 26, wherein upon a selection operation to the group object, a list of device objects representing devices belonging to the group is displayed on-screen, device objects representing devices selected from the list are exclusively expanded and displayed in corresponding positions, and the devices displayed are removed from the group object.

28.   (Withdrawn) The network configuration chart displaying method according to any one of claims 18-20, wherein as many connection objects as the number of connection ports are displayed on a concentric circle around the figure of the equipment object, in the order of port numbers.

29.   (Withdrawn) The network configuration chart displaying method according to any one of claims 18-20, wherein if the packet relay equipment object corresponding to the packet relay equipment concerned is displayed on an edge of a display window on-screen and if a device object connected thereto lies outside the display window as well, then a scroll button is displayed near the packet relay equipment object, inside the figure of the object, or on a distribution object connected to the packet relay equipment object.

30.   (Withdrawn) The network configuration chart displaying method according to any one of claims 18-20, wherein upon a select operation to the packet relay equipment object, the packet relay equipment object and a device object connected to the packet relay equipment object are arranged and displayed at the screen center.

31. (Withdrawn) The network configuration chart displaying method according to any one of claims 18-20, wherein network devices are displayed on different layers depending on their types or locations.

32. (Withdrawn) The network configuration chart displaying method according to claim 31, wherein: a layer display button is displayed near the packet relay equipment object corresponding to the packet relay equipment concerned or on the figure of the object; and upon a layer select operation from this layer display button, a device object that is connected to the packet relay equipment concerned and lies on another layer is displayed.

33. (Withdrawn) The network configuration chart displaying method according to claim 32, wherein: a layer structure is provided to display an on-floor device configuration and an underfloor distribution arrangement separately; and upon a select operation to any position on a layer for displaying the on-floor device configuration, part of distribution in the vicinity of the corresponding position on a layer for displaying the underfloor distribution arrangement is also displayed on the layer for displaying the on-floor device configuration if displayable distribution exists in the vicinity of the corresponding position.

34. (Withdrawn) A network configuration chart displaying system for displaying onto a display screen a network configuration chart showing connections of network devices connected to a network via packet relay equipment, the system comprising:

connection information collecting means for collecting connection information of network devices such as a computer and a printer connected to the network, and storing the same into a connection table, wherein the connection information collecting means includes means for acquiring a set of physical addresses of network devices connected to ports of a network device from the management information base of the network device, the network device being a type of device to have a bridge function, means for acquiring information as to physical-IP address correspondence from the management information base of a network device having a routing function, and means for recognizing at an IP level the devices connected to each of the ports of

the network device having a bridge function, based on the acquired information as to physical-IP address correspondence; and

connection display means for displaying packet relay equipment having a plurality of connection ports as a packet relay equipment object having as many connection objects as the number of connection ports, displaying a network device such as a computer and a printer as a device object having a connection object, and displaying the connection between the packet relay equipment and the network device as a line segment connecting the connection objects to each other, on the basis of the connection information collected, wherein the collected connection information includes at least port information of the network device, existence or non-existence of a selected network device and an active or inactive state of the selected network device.

35.   (Currently amended) A method of automatically recognizing a network configuration, for automatically recognizing a device configuration on a network system having a network node including at least one or more intelligent network devices each implementing an SNMP agent and a management information base, the method comprising:

a first step of sending an ICMP echo request from an administrator terminal implementing an SNMP manager to individual network devices in the network node, and detecting existence and non-existence of network devices on the basis of responses therefrom, wherein the network devices include at least one device having plural IP addresses except for a router; and,

a second step of

creating plural SNP messages, each of the plural SNMP messages inquiring whether or not the network devices support IP forwarding function and one or more of management information bases included in each SNMP message wherein the management information bases (MIBs) include a bridge MIB, a repeater MIB and a printer MIB,

sending the plural SNMP messages one by one to the SNMP agents in the network devices of which existence was detected in the first step, and

detecting the types of the network devices in the network node based on information of success and failure of sending and receiving the plural SNMP

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messages and combinations of information stored in management information bases included in the received SNMP messages, wherein the types of the individual network devices and roles of the individual network devices in the network node are determined based on the combinations of the information stored in the management information bases included in the received SNMP messages and wherein the type of device does not indicate the role of device primarily in terms of the device having the plural IP addresses except for the router.